

A study of various factors that affect TOLAC (trial of labour after caesarean) after previous one caesarean section

Pradeep Patil^{1*}, Vrunda Choudhary²

^{1,2}Assistant Professor, Department of Obstetrics & Gynecology, Ashwini Rural Medical College, Hospital and Research Center, A/P - Kumbhari, Tal. South Solapur, Dist.- Solapur, Maharashtra, INDIA.

Email: mmpateltrust@gmail.com

Abstract

Background: Women undergoing cesarean section have a higher morbidity and mortality rate than those having vaginal birth. Complications associated with cesarean section are postpartum hemorrhage, need for blood transfusion, anesthesia-associated complications, surgical risks like intestinal obstruction, wound dehiscence, wound scars, infection, etc. TOLAC (Trial of Labour After Caesarean section) reduces above risk. **Aim and objective:** To study the various factors that affect Trial of Labour After one caesarian section **Methodology:** Total 261 patients were studied in department of Obstetrics and Gynaecology. Data included sociodemographic data and maternal factors related to VBAC like Age, Education, Parity, Gestational age, Registered / unregistered pregnancy, Indication for previous LSCS, Lower uterine segment thickness on USG, Spontaneous or Induced Labor, Cervical dilatation at the time of admission to labor room. Trial of labour was given in labour rooms to those who have undergone spontaneous labour or who have been induced. Careful monitoring of labour was done partogram and fetal heart sound. Patients who required caesarean section were shifted to operation theatre. Remaining delivered by normal vaginal delivery or assisted delivery. Data was analysed with appropriate statistical tests. **Results and discussion:** Total 261 patients were given trial of labor. Out of those 193 patients (74%) delivered vaginally. This association of failed trial with cervical dilatation was statistically extremely significant. Education, gestational age, registration status of mother were statistically not significant. **Key Word:** TOLAC

*Address for Correspondence:

Dr Pradeep Patil, Assistant Professor., Department of Obstetrics and Gynecology, Ashwini Rural Medical College, Hospital and Research Center, A/P - Kumbhari, Tal. South Solapur, Dist.- Solapur, Maharashtra, INDIA.

Email: mmpateltrust@gmail.com

Received Date: 08/12/2019 Revised Date: 17/01/2019 Accepted Date: 26/12/2019

DOI: <https://doi.org/10.26611/10121334>

Access this article online

Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 22 March 2020

INTRODUCTION

Cesarean delivery is one of the most commonly performed operations today. As medical science and especially obstetrics has evolved over the recent years, there has been a parallel and steady increase in the rate of cesarean births.

The operation of 'cesarean delivery' has also witnessed this evolution; from it being done in desperate situations as a postmortem surgery to save the unborn child to the present times when one of the most common indications for cesarean delivery is a previous cesarean birth. The advent of cesarean delivery was followed immediately by dilemmas in the management of the patient who had a history of a previous cesarean section. The introduction of the low transverse uterine incision by Kerr¹ in 1926 was the largest boost for the advocates of vaginal birth after cesarean in the early decades of 1900s. Case² explained that the 'Kerr' incision prevented peritonitis by limiting the seepage of infected material from the wound into the peritoneal cavity and thus lowered maternal mortality and morbidity. Merrill and Gibbs³ reported from the University of Texas at San Antonio that subsequent vaginal delivery was safely accomplished in 83% of their

patients with prior cesarean deliveries. This rekindled interest in VBAC (vaginal birth after cesarean delivery) at a time when only 2% of American women who had previously undergone cesarean section were attempting vaginal delivery.

Aim and objective: To study the various factors that affect Trial Of Labour After one caesarian section

MATERIAL AND METHODS

Present study was a prospective study. It was carried on 261 patients at a tertiary health care center. Patients admitted in department of obstetric and gynecology for delivery with history of one previous caesarian section were studied.

Inclusion criteria: 1. Patients with only one previous caesarian 2. All vertex presentations 3. Singleton gestations

Exclusion criteria: 1. Patients with known classical or inverted T incision during previous caesarian section. 2. Lower vertical scar in previous section 3. Patients with presentations/lie apart from vertex 4. Patients with multiple gestation 5. Patients having upper segment hysterotomy scar or Patients having previous scar of myomectomy.

Study was approved by ethical committee of the institute. A valid written consent was taken from the patients after explaining study to them. Data collected with pre tested questionnaire. Data included sociodemographic data, various maternal factors like Age, Education, Parity, Gestational age, Registered / unregistered pregnancy, Indication for previous LSCS, Lower uterine segment thickness on USG, Spontaneous or Induced Labor , Cervical dilatation at the time of admission to labor room, Cervical effacement at the time of admission to labor room, Station at the time of starting of trial. Patients who were registered during antenatal visits and patients who visited in emergency were studied. Lower uterine segment thickness was measured by ultrasound examination in patients after they have completed 36 weeks of gestation. But lower uterine segment thickness was not done in those patients who were in labour though have passed their 36 weeks of gestation. Pelvic Assessment was done to assess the adequacy of pelvis. Emergency preparedness measures like availability of surgeon, anaesthesia provider, operating room personnel and sufficient blood was always ensured. Trial of labour was given in labour rooms to those who have undergone spontaneous labour or who have been induced and labour augmentations by Pitocin in IV drip was done in those who required. Careful monitoring of labour was done by recording maternal pulse, Blood Pressure and plotting the partogram for each patient for cervical dilation and fetal Heart monitoring by intermittent auscultation by stethoscope and Doppler. Vigilant watch

was kept for symptoms and signs of scar dehiscence such as maternal and fetal tachycardia, hypotension, fetal bradycardia, per vaginal bleeding; lower uterine segment tenderness or change in uterine contour especially when labour was induced or augmented. Patients who developed fetal distress, who crossed the action line on partogram, who developed signs and symptoms of scar dehiscence were shifted for emergency LSCS. Outcome of the pregnancy noted. Data analysed with appropriate statistical tests.

RESULTS

Total 261 patients were given trial of labor. Out of those 193 patients (74%) delivered vaginally without assistance while only 5 patients (1.9%) required assistance with forceps. About 63 (24.2%) patients required repeat cesarean section.(fig 1)

Most of the patients 149(57.08%) were in age group 20-25 yrs followed by 25-30 yrs 78(29.88%). Only 28(10.72%) patients were above 30 yrs of age. The need for repeat cesarean section was more in 20-25 yrs age group 28(28.2%) followed by in 25-30 yrs 20(7.66%). Only 1 patient above 30 yrs of age required repeat C.S. There was highly significant rate of vaginal delivery in patients above 30 yrs of age. The patients were distributed with rising trend when associated with level of education. Most of the patients were having above school level of education. The need for repeat cesarean section was increasingly present in patients having higher education. Most of the patients were registered at study place. (75%) while patients who were admitted in emergency were only 17.24%. But need for repeat C. S. was more in registered patients in comparison with unregistered patients i.e.21.45% Vs 2.68%. Registration status and mode of delivery were significantly not associated($p>0.05$) .(table2) Lower uterine segment thickness was measured in 176 patients. It could not be measured in 85 patients because most of them got admitted in active labor. Intraoperative finding of uterine dehiscence was present in only 2 patients these patients were not included in the study. Another important finding was that none of the patients with Lower uterine segment thickness <2.5 mm had uterine dehiscence.(table 3) When distributed according to gestational age most of the patients were in group 37 to 40 wks. About 55 patients were having gestation more than 40 weeks. More no. of patients required repeat C.S. as the gestational age went on increasing. Though this fact remained statistically insignificant when groups were compared among themselves. No. of the patients ($n= 114$) admitted in active phase of labor was slightly less than those admitted while not in active labor ($n= 147$). The need for repeat C.S was negligible in women having active labour at the time of admission to labor room i.e.2.68% when compared with

another group i.e.21.45%. This association of failed trial with cervical dilatation was statistically extremely significant (table 4). When distributed according to gestational age most of the patients were in group 37 to 40 wks. About 55 patients were having gestation more than 40 weeks. More no. of patients required repeat C.S. as the gestational age went on increasing. Though this fact remained statistically insignificant when groups were compared among themselves.(table 5) Most of the patients who needed repeat C.S. were shifted because they developed fetal distress i.e.61% (n= 39) while 10 patients needed repeat C.S. because they failed to progress in labor accounting for 15.8%. Suspected dehiscence was indication in 8 patients while 6 patients had their latent phase of labor prolonged.(fig 2)

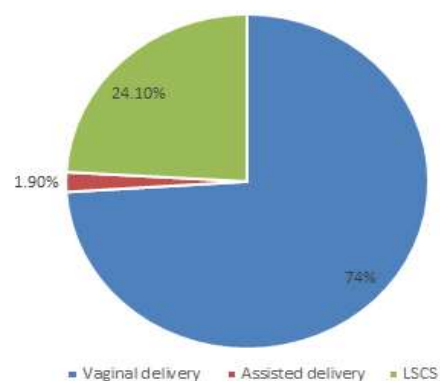


Figure 1: Mode of delivery

Table 1: Distribution of patients according to education of mother and type of delivery

Sr no	Education	Vaginal delivery	Forcep delivery	LSCS	Total
1	Illiterate	8(3.07%)	00(0%)	04(1.53%)	12(4.59%)
2	Primary school	18(6.9%)	00(0%)	08 (3.07%)	26(9.96%)
3	High school	108 (41.38%)	04(1.53%)	28(10.72%)	140(53.64%)
4	Graduation	59(22.61%)	01(0.38%)	23(8.81%)	83(31.81%)
5	Total	193(73.95%)	05(1.92%)	63(24.13%)	261(100%)

Table 2: Distribution of patients according to registration status of mother and type of delivery

Sr no	Registration of patients	Vaginal delivery	Forcep delivery	LSCS	Total
1	Registered at study place	148 (56.7%)	05(1.91%)	43(16.47%)	196(75.09%)
2	Registered at other hospital	07(2.68%)	00(0%)	13(4.98%)	20(7.66%)
3	Unregistered	38(14.55%)	00(0%)	07(2.68%)	45(17.24%)
4	Total	193(73.94%)	05(1.91%)	63(24.13%)	261(100%)

P=0.095 RR=0.87 (0.75-1.01)

Table 3: Distribution of patients according to Lower Uterine Segment thickness and type of delivery

Sr no	LUS thickness	Vaginal delivery	Forcep delivery	LSCS	Total
1	<2.5 mm	01(0.38%)	00(0%)	08(3.06%)	09(3.44%)
2	2.5-3.5mm	94(36.01%)	00(0%)	48(18.39%)	142(54.4%)
3	>3.5mm	23(8.81%)	01(0.38%)	01(0.38%)	25(9.57%)
4	LUS thickness not measured	75(28.73%)	04(1.53%)	06(2.29%)	85(32.56%)
5	Total	193(73.94%)	05(1.91%)	63(24.13%)	261(100%)

Table 4: Distribution of patients according to cervical dilatation in mother and type of delivery

Sr no	Cervical dilatation	Vaginal delivery	Forcep delivery	LSCS	Total
1	< 4 cm	89(34.09%)	02(0.76%)	56(21.45%)	147(56.32%)
2	≥ 4 cm	104(39.84%)	03(1.14%)	07(2.68%)	114(43.67%)
3	Total	193(73.94%)	05(1.91%)	63(24.13%)	261(100%)

Table 5: Distribution of patients according to gestational age and type of delivery

Sr no	Gestational age	Vaginal delivery	Forcep delivery	LSCS	Total
1	<37 wks	11(4.21%)	01(0.38%)	00(0%)	12(4.59%)
2	37-40 wks	146(55.93%)	03(1.14%)	45(17.24%)	194(74.32%)
3	>40 wks	36(13.79%)	01(0.38%)	18(6.89%)	55(21.07)
4	Total	193(73.94%)	05(1.91%)	63(24.13%)	261(100%)

p>0.05 not significant

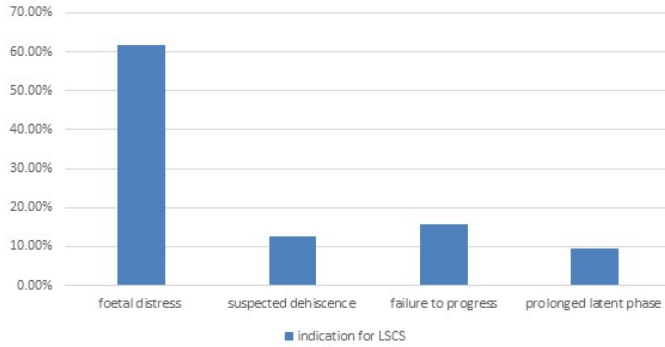


Figure 2: Distribution of patients according to indication for LSCS

DISCUSSION

The overall success rate of VBAC in our study was 74%. Various other study shows comparable results like Rageth *et al.* ⁴ 73.3%, Sims *et al.* ⁵ 77%, Elkousy *et al.* ⁶ 74% and Bujold *et al.* ⁷ 78 %. The success or failure, as in the cases of the present study, cannot be, thereby, attributed to the presence of a scar alone, but to the labour various maternal characteristics collectively, which precedes the repeat C.S. The repeat C.S. results due to failure of this labour. When distributed according to gestational age most of the patients were in group 37 to 40 wks. About 55 patients were having gestation more than 40 weeks. More no. of patients required repeat C.S. as the gestational age went on increasing. Though this fact remained statistically insignificant when groups were compared among themselves. Callahan *et al.*, ⁸ in a case- control study, compared women attempting VBAC past 40 weeks of

gestation with women of the same gestational age with no history of prior cesarean delivery. Among the cases, the VBAC success rate was similar to that reported in the literature (66%), but the choice of a comparison group without a history of prior cesarean limits the application of the study results to patient counseling. Zelop *et al.* ⁹ compared women attempting VBAC at or before 40 weeks of gestation with those attempting VBAC beyond 40 weeks. This study included 2,775 women, of whom 1,271 delivered after 40 weeks. They found that women beyond 40 weeks were more likely to have a failed VBAC (35.4% compared with 26.7%, P < 0.001). In the adjusted analysis, gestational age more than 40 weeks remained a risk factor for a failed VBAC both for spontaneous (OR 1.5, CI 1.2 -1.8) and induced labor (OR 1.5, CI 1.1-2.2). Hammond *et al.*¹⁰ reported their analysis of a cohort of patients attempting VBAC examined by gestational age category. They reviewed records of 329 patients 41 or more weeks of gestation attempting VBAC, comparing those with 2 groups of earlier gestational ages (24-36 6/7 weeks and 37-40 6/7 weeks of gestation). They noted a lower rate of VBAC success with advanced gestational age. In the present study, 147 patients reported in the latent phase and only 6.2 % delivered vaginally, while those who presented in active labor had successful VBAC in 93.8 % patients, a result comparable to findings those of Flamm and Geiger(1997) ¹¹ and Bujold(2004) ⁷ It probably indicates, as early as in the latent phase, that the labor might not be a fruitful one. (table A)

Table A: comparison of various studies for cervical dilatation and

Cervical dilatation at admission	Jarell <i>et al.</i>		Flamm and Geiger <i>et al.</i>		Bujold <i>et al.</i>		Present study	
	VBAC	FVL	VBAC	FVL	VBAC	FVL	VBAC	FVL
< 4cm	31.3	68.7	67.4	32.6	61.5	38.5	61.8	38.2
>4 cm	-	-	87.43	12.57	89.7	10.3	93.8	6.2

Present study shows rate of dehiscence and rupture was 0.76%. Previous studies like Landon *et al.*¹² (0.7%), Lieberman *et al.* ¹³ (0.4%) and Wen *et al.* ¹⁴ (0.65%) show similar results. The findings of the present study indicate that the rates of dehiscences and ruptures are well within those acceptable for a trial of vaginal labor following C.S. This also indicates that within the given resources, trial of labor after C.S. is safe and the LUS scar is strong.

CONCLUSION

The overall success rate of VBAC trial in this study was comparable to international standards. Inclusion of practice of labor induction in patients with previous one LSCS

could have given even better success rates ,though increase in rupture rate and perinatal mortalities also might have increased.

REFERENCES

1. Kerr JM: The technique of cesarean section with special reference to the lower uterine segment incision. Am J Obstet Gynecol 12:729,1926.
2. Case BD, Corcorom R, Jeffcoate N *et al.*. cesarean and its place in modern obstetric practice. J. obstet Gynecology Br. Common w., 1971; 78:203-214.
3. Merrill BS, Gibbs CE: Planned vaginal delivery following cesarean section. Obstet Gynecol 52:50, 1978.
4. Rageth (Switzerland), Delivery after previous cesarean section: a risk evaluation. OG, 93:332, 1999.

5. Sims, E. J., Newman, R.8., and Hulsey, T. C. (2001). Vaginal birth after cesarean: To induce or not to induce. *American Journal of Obstetrics and Gynecology*, 184, 1122-1124
6. Elkousy (U of Penn),2003; The effect of birth weight on vaginal birth after cesarean delivery success rates, *A J OG*: 188,824,2003
7. Bujold (Montreal) Trial of labor in patients with a previous caesarean section: does maternal age influence the outcome? *AJOG* ,2004
8. Callahan *et al.* (UNC-CH) 1999; Safety and efficacy of attempted VBAC beyond the EDC, *JRM*: 44,606, 1999'
9. Zelop *et al.* (Lenox Hill Hosp) 2001', Trial of labor after 40 weeks' gestation in women with prior cesarean; *OG*: 97, 391'2001
10. Hammond *et al.* (Wayne State) 2004; The effect of gestational age on TOL after PCS, *J Mat Fet Neonat Med* : 15,202,2004.
11. Flamm, B. L. (1997). Once a cesarean, always a controversy. *Obstetrics and Gynecology*, 90, 312-315.
12. Landon (Ohio State), Maternal and perinatal outcomes associated with a trial of labor after prior CS, *NEJM*, 351:2581 ,2004.
13. Lieberman *et al.* (Brigham and Women's), Results of a national study of VBAC in birth centers. *OG*,104:933,2004.
14. Wen *et al.*(Ontario), Comparison of maternal mortality and morbidity between TOL and elective CS among women with PCS. *AJOG*, 191 : 1263,2004.

Source of Support: None Declared
Conflict of Interest: None Declared

